

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

**EP 0 998 156 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**24.05.2000 Bulletin 2000/21**

(51) Int. Cl.<sup>7</sup>: **H04Q 7/36**, H04Q 7/20,  
H04H 1/00

(43) Date of publication A2:  
**03.05.2000 Bulletin 2000/18**

(21) Application number: **99118162.9**

(22) Date of filing: **16.03.1995**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL  
PT SE**  
Designated Extension States:  
**LT SI**

(30) Priority: **17.03.1994 US 210404**

(62) Document number(s) of the earlier application(s) in  
accordance with Art. 76 EPC:  
**95913997.3 / 0 750 827**

(71) Applicant: **ENDLINK, INC.**  
**Stamford, CT 06902 (US)**

(72) Inventors:  
• **BLESSING, Raymond, R**  
**Los Altos, California 94024, (US)**  
• **Keible, Edward A.**  
**Palo Alto, CA 94301 (US)**  
• **Likins, Paul**  
**Southport, CT 06490 (US)**  
• **Lockie, Douglas G.**  
**Los Gatos, CA 95030 (US)**  
• **Mohwinkel, Clifford A.**  
**San Jose, CA 95128 (US)**

(74) Representative:  
**Powell, Stephen David et al**  
**WILLIAMS, POWELL & ASSOCIATES**  
**4 St Paul's Churchyard**  
**London EC4M 8AY (GB)**

(54) **Sectorized multi-function cellular radio communication system**

(57) A communications system (10A, 10B) comprises cells (11), each cell comprising a substantially centrally-located receiving and/or transmitting antenna member surrounded by a plurality of substantially sector-shaped regions (12, 14, 38, 40) extending out to the edge of the cell from the antenna member, the antenna member comprising a plurality of circumferentially distributed directional antenna elements (15A, 17A, 15B, 17B), each antenna element being arranged to communicate only with receivers (20, 22, 28, 30) located within a single one of said sector-shaped regions, the sector angles of the sector-shaped regions (12, 14, 38, 40) lying within the range 2 degrees to 15 degrees.

**EP 0 998 156 A3**



European Patent  
Office

EUROPEAN SEARCH REPORT

Application Number  
EP 99 11 8162

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 92 02996 A (INVENTAHL AB) 20 February 1992 (1992-02-20)  * page 8, line 28 - page 9, line 6 * * page 49, line 7 - line 12 * * page 11, line 4 - page 13, line 11 *	1,2,4-9, 11,12, 15,16	H04Q7/36 H04Q7/20 H04H1/00
A	EP 0 201 254 A (AMERICAN TELEPHONE & TELEGRAPH) 12 November 1986 (1986-11-12) * page 3, line 17 - page 9, line 15 *	1,8	
A	GB 2 261 575 A (CSIR) 19 May 1993 (1993-05-19)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H04Q H01Q
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>3 April 2000</b>	Examiner <b>Janyszek, J-M</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 11 8162

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-04-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9202996 A	20-02-1992	AU 668076 B	26-04-1996
		AU 8330691 A	02-03-1992
		CA 2088993 A	08-02-1992
		DE 69123590 D	23-01-1997
		DE 69123590 T	26-06-1997
		EP 0543857 A	02-06-1993
		ES 2098364 T	01-05-1997
		US 5666653 A	09-09-1997
EP 0201254 A	12-11-1986	AU 564221 B	06-08-1987
		AU 5708486 A	06-11-1986
		CA 1250647 A	28-02-1989
		DE 3686506 A	01-10-1992
		JP 62010997 A	19-01-1987
		US 4730310 A	08-03-1988
GB 2261575 A	19-05-1993	AP 335 A	27-04-1994
		HK 120696 A	19-07-1996
		MX 9206570 A	01-07-1993
		OA 9714 A	30-08-1993
		SG 52337 A	28-09-1998
		ZA 9208822 A	13-05-1993

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82